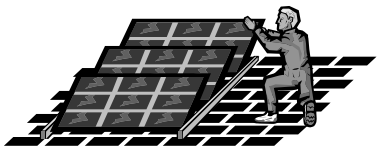
Permitting Requirements for Stand-Alone Generator Units
October 2007

As a result of the 2003 and 2007 October wildfires, many residents located off the power grid need to process permits for stand-alone generator units. The intent of this guidance document is to inform fire victims of the requirements that must be satisfied before permits are issued for such units and ways to comply with those requirements.

A. REQUIREMENTS (BASIC)

1. Permanent stationary generators used as a power source must comply with the County Building Code (including the requirement that the unit have appropriate UL2200 certification) and fire code requirements. Installation must also be sized according to the maximum load demand of its intended use.

2. Permanent generators shall comply with the property line sound level limits of the County Noise Ordinance (Section 36.404). Most off-grid locations have low-density residential or agricultural zoning and the most stringent requirement is a one-hour average sound level limit of 45 decibels (dBA) at the property line.



3. If a solar application is used as the principal power source, there may be a requirement for reserve battery or storage capacity to supply the resident's fire sprinkler pump system. Staff notes that a permanent generator could be used as a backup to charge the batteries in a solar system but need to be sized accordingly and be checked for fire code requirements. Portable generator installations are a plug-in type, have a self-contained fuel source, and do not qualify as a required back-up or stand-alone unit.

B. PROCEDURES FOR MEETING REQUIREMENTS

1. Submit a plot plan and generator noise specifications to DPLU staff. Building (electrical) and fire code requirements shall be checked first.

2. If the proposed generator is one of the known units with field data (Onan or Kohler at this time), staff will be able to expedite the processing of the permit using the following criteria:

    a. The minimum acoustical setback for all property lines is met for either the unmitigated condition or with a sound enclosure. (Please note that adjacent commercial, industrial, or high-density residential zones may change the applicable property line sound level limits.)

    b. The property line is at the same elevation or below the generator site.

c. If an enclosure is required, the plot plans shall show its location and specify its material as masonry or 8-inch cmu block walls. Any access door (metal or wooden) will face the interior of the permit site away from the nearest property line. Any cracks or openings in the enclosure walls shall be caulked or filled on the interior façade or the side facing the equipment. The center of the generator set shall be located no further than five feet from the enclosure wall nearest to the affected property line. For a wooden door, it would be a solid core type at least 1¾ inches thick with seals and a threshold sweep. The roof covering shall be class "A" and all eaves shall be enclosed or other "enhanced" fire resistive construction per DPLU handout #198.

d. Conditions would be added to the permit to demonstrate that the unit was properly installed and documented with photographs and equipment serial numbers in a final inspection.

e. The Fire Authority having jurisdiction shall approve all fuel tanks not an integral part of the generator. LPG tanks up to 499 gallons water capacity shall be located at least 10 feet away from generator, buildings, roads and property lines. Above ground and below ground flammable or combustible liquid tanks must meet Fire Code standards and be installed under permit from the local Fire Authority.

3. If the generator is not one of the known units with field data, the applicant shall secure the services of a County-certified acoustical consultant to provide either field data (octave band measurements) of the proposed generator's noise performance or to generate a custom site-specific design of the generator installation.

   a. With only a letter report of the certified field data, staff would estimate the acoustical setback for that particular make and model of generator (with or without a "standard" enclosure). The applicant would use this information to prepare a plot plan for submittal along with the generator specifications (Go back to step 1).

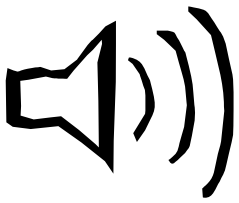
   b. For a custom site-specific design, staff would provide conditions in the generator permit to insure the proper installation and final certification of the generator for this site. Staff shall not design the installation and will require a letter from the consultant with sufficient supporting evidence that the proposed installation shall be able to meet the property line sound level limits (Go back to step 1 and include a consultant letter with the submittal).

C. EXAMPLES OF MANUFACTURERS/PRODUCT INSTALLATION – NOISE COMPLIANCE

Staff does not endorse or recommend a particular brand of generator, but is only attempting to provide guidance for this type of permit application.

Staff has examined noise issues for two vendors (Kohler and Onan) and has compiled recommendations for permanent generator installations that will comply with County noise regulations based on property line distance with or without a simple open enclosure design. A custom application closer to any property line or the selection of other brands or types of generators shall require a permit application to include a letter and site plan from a County-certified acoustical consultant stating the requirements and providing any additional evidence demonstrating the compliance of the proposed installation to County noise regulations. A certification test may be required by the County if there is any question that the proposed design is marginal in nature (lack of field measurements or other supporting evidence).

- ✓ Based on the 45-decibel limit, staff has estimated that an unmitigated Kohler generator set for a residence (10-12 kilowatt capacity) would be located at least 260 feet from the nearest property line. If the same propane or natural gas powered generator set were placed in an open enclosure with 6-foot tall masonry block walls, the minimum distance to the nearest property line would be reduced to 80 feet. These estimates were based on field data and not on the manufacturer's stated specification of 65 decibels (dBA) at a reference distance of 23 feet.



- ✓ Based on the same 45-decibel limit, staff has estimated that an unmitigated Onan generator set for a residence (12-15 kilowatt capacity) would have to be located at least 500 feet from the nearest property line. If the same propane or natural gas powered generator set were placed in an open enclosure with 6-foot tall masonry block walls, the minimum distance to the nearest property line would be reduced to 160 feet. These estimates were based on representative field data and not on the manufacturer's stated specification of 71 decibels (dBA) at a reference distance of 23 feet.

D. Questions

- ✓ Noise requirements: Emmet Aquino (858) 694-8845.
- ✓ Building and UL2200 requirements: Pat Healy at (858) 694-3767.
- ✓ Fire requirements: Ralph Steinhoff at (858) 565-5920.